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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

MESCHKE, Frank

International Application No. PCT/EP2003/008177

Serial No. NOT YET ASSIGNED

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For: MATERIAL COMPRISING A SURFACE CONSISTING OF A METAL CARBIDE-CARBON COMPOSITE AND A METHOD FOR PRODUCING THE SAME

ARTICLE 34 AMENDMENTS

Commissioner for Patents
P.O. Box 1450
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Sir:

Submitted herewith are Article 34 amendments submitted to the European Patent Office in the captioned application.

Respectfully submitted,
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Patent Claims

1. A material having a surface formed from a metal carbide/carbon composite, characterized in that a metal carbide surface contains carbon which is cohesively bonded in geometrically defined regions down to a depth of from 0.01 to 1000 µm.
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2. The material as claimed in claim 1, characterized in that the metal carbide is SiC.
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3. The material as claimed in claim 2, characterized in that the SiC is an SiC sintered body or reaction-bonded silicon carbide or an SiC covering layer on any
15 desired substrate.
4. The material as claimed in one of claims 1 to 3, characterized in that from 0.1 - 99, preferably from 5 - 95, particularly preferably from 15 - 90, and
20 especially preferably from 25 - 80 percent of the surface area consists of carbon.
5. The material as claimed in one of claims 1 to 4, characterized in that the carbon is amorphous carbon,
25 crystalline carbon, graphite, diamond or a mixture thereof.
6. The material as claimed in one of claims 1 to 5, characterized in that the thickness of the carbon layer
30 is 0.01 - 50 µm.
7. A process for producing a shaped body, characterized in that a material with a metal carbide surface is heated in a defined region of its surface,
35 in the presence of a reaction gas, a shielding gas or in a vacuum, by means of a radiation source, in such a manner that in this region the metal carbide is locally

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converted into carbon.

8. The process as claimed in claim 7, characterized in that the metal carbide is locally irradiated with
5 the aid of a radiation source and in the process is heated to 600-1500°C, and at the same time the metal carbide surface is exposed to a reaction gas, the reaction gas being such that in the predetermined temperature range it is able to dissolve the metal of
10 the metal carbide and leave behind carbon.

9. The material as claimed in claim 8, characterized in that the reaction gas used is a carrier gas mixed with a halogen.

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10. The process as claimed in claim 9, characterized in that the halogen used is chlorine and the carrier gas used is argon.

20 11. The process as claimed in claim 7, characterized in that the surface which is irradiated with a radiation source is locally heated to more than 1500°C and less than 2200°C and is exposed to a vacuum or shielding gas, with metal carbide decomposing into
25 metal and carbon without the involvement of foreign elements.

12. The process as claimed in one of claims 7 to 11, characterized in that the radiation source used is a
30 laser, a microwave or an electron beam.